RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Log Event A

Borehole 60-09-10

Borehole Information

Farm : U	**Tank :** U-109	**Site Number :** 299-W18-123
N-Coord : 38,017	**W-Coord :** 75,887	**TOC Elevation :** 663.84
Water Level, ft :	**Date Drilled :** 7/31/1974	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 125	

Borehole Notes:
According to the driller's records, this borehole was not perforated or grouted.

Equipment Information

Logging System : 1	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1995	**Calibration Reference :** GJPO-HAN-3	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 11/14/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 8.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 11/14/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 124.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 22.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 3	**Log Run Date :** 11/16/1995	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 7.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 23.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787 Analysis Date : 7/12/1996

Analysis Notes :

This borehole was logged in three log runs. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Gain drifts during data collection were minor and did not require energy versus channel number recalibrations during processing of the data to maintain proper peak identification. Depth overlaps, where data were collected on separate days at the same depth, occurred in this borehole at about 8 and 23 ft. With the exception of U-238 at about 23 ft, the calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability. At 23 ft, the U-238 (609 keV Bi-214) repeatability is affected by radon outgassing in the borehole

The casing thickness is presumed to be 0.280 inch (in.), on the basis of the published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 is the only man-made radionuclide identified in this borehole. The presence of Cs-137 was measured at a few locations near the ground surface and continuously from about 85 ft to TD. Concentrations of Cs-137 range from about 0.2 to slightly more than 1 pCi/g.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank U-109.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.